

	English/Language Arts	Mathematics	Social Studies
ACTIVITY			
Adventures In Density (25)	4.2.3, 4.5.2		
H ₂ O Olympics (30)		4.5.8	
Aqua Bodies (63)		4.1.8, 4.5.8	
Poison Pump (93)	4.2.3, 4.2.6		
Salt Marsh Players (99)	4.5.3		
Water Address (122)	4.1.1, 4.7.1		
Capture, Store, And Release (133)			4.3.7
Imagine (157)	4.5.1		
The Incredible Journey (161)	4.5.1		
Old Water (171)		4.3.8	
Piece It Together (174)	4.1.1, 4.2.5		4.3.1, 4.3.7
Poetic Precipitation (182)	4.5.6		
The Thunderstorm (196)	4.5.1		
Wet Vacation (206)	4.4.3, 4.4.7		
Common Water (232)			4.1.11
A Drop In The Bucket (238)		4.1.1, 4.6.1	4.3.6
Irrigation Interpretation (254)	4.7.1		4.3.5
Sum of The Parts (267)	4.7.12		
Water Meter (271)		4.3.8	

AfterMath (289)	4.4.3, 4.4.4, 4.5.1, 4.7.6, 4.7.11	4.2.11, 4.7.4	4.3.7
Back To the Future (293)		4.3.8, 4.6.1, 4.6.2	4.3.7
Every Drop Counts (307)	4.5.3	4.3.8, 4.6.1, 4.7.4	
Macroinvertebrate Mayhem (322)	4.4.3		
Money Down The Drain (328)		4.3.2, 4.3.7, 4.5.9, 4.7.8	
Reaching Your Limits (344)		4.1.2	
Cold Cash In the Icebox (373)		4.5.9, 4.7.4	4.4.4
Easy Street (382)	4.2.5, 4.7.1	4.2.1, 4.7.4	4.3.9, 4.5.6
Water Bill Of Rights (403)	4.4.3, 4.5.6		
Water Concentration (407)	4.5.1, 4.5.3		
Water Crossing (421)	4.4.4		4.3.10
Raining Cats And Dogs (435)	4.3.5		
Water Write (457)	4.4.1, 4.5.6		

Grade 4

Standard 1

READING: Word Recognition, Fluency, and Vocabulary Development

Students understand the basic features of words. They see letter patterns and know how to translate them into spoken language by using phonics (an understanding of the different letters that make different sounds), syllables, word parts (un-, re-, -est, -ful), and context clues (the meaning of the text around a word). They apply this knowledge to achieve fluent (smooth and clear) oral and silent reading.

Decoding and Word Recognition

- 4.1.1 Read aloud grade-level-appropriate narrative text (stories) and expository text (information) with fluency and accuracy and with appropriate timing, changes in voice, and expression.

WET Activities (page): 122, 174

Standard 2

READING: Comprehension

*Students read and understand grade-level-appropriate material. They use a variety of comprehension strategies, such as asking and responding to essential questions, making predictions, and comparing information from several sources to understand what is read. The selections in the **Indiana Reading List** (available online at www.doe.state.in.us/standards/readinglist.html) illustrate the quality and complexity of the materials to be read by students. At Grade 4, in addition to regular classroom reading, students read a variety of grade-level-appropriate narrative (story) and expository (informational and technical) texts, including classic and contemporary literature, poetry, magazines, newspapers, reference materials, and online information.*

Comprehension and Analysis of Grade-Level-Appropriate Text

- 4.2.3 Make and confirm predictions about text by using prior knowledge and ideas presented in the text itself, including illustrations, titles, topic sentences, important words, foreshadowing clues (clues that indicate what might happen next), and direct quotations.
Example: While reading a mystery, such as *Encyclopedia Brown: Boy Detective* by Donald Sobol, predict what is going to happen next in the story. Confirm or revise the predictions based on further reading. After reading an informational text, such as *Camouflage: A Closer Look* by Joyce Powzyk, use information gained from the text to predict what an animal might do to camouflage itself in different landscapes.

WET Activities (page): 25, 93

- 4.2.5 Compare and contrast information on the same topic after reading several passages or articles.

Example: Read several fictional and informational texts about guide dogs, such as *A Guide Dog Puppy Grows Up* by Carolyn Arnold, *Buddy: The First Seeing Eye Dog* by Eva Moore, and *Follow My Leader* by James B. Garfield, and compare and contrast the information presented in each.

WET Activities (page): 174, 382

- 4.2.6 Distinguish between cause and effect and between fact and opinion in informational text. Example: In reading an article about how snowshoe rabbits change color, distinguish facts (such as *Snowshoe rabbits change color from brown to white in the winter*) from opinions (such as *Snowshoe rabbits are very pretty animals because they can change colors*).

WET Activities (page): 93

Standard 3

READING: Literary Response and Analysis

*Students read and respond to a wide variety of significant works of children's literature. They identify and discuss the characters, theme (the main idea of a story), plot (what happens in a story), and the setting (where a story takes place) of stories that they read. The selections in the **Indiana Reading List** (available online at www.doe.state.in.us/standards/readinglist.html) illustrate the quality and complexity of the materials to be read by students.*

Narrative Analysis of Grade-Level-Appropriate Text

- 4.3.5 Define figurative language, such as similes, metaphors, hyperbole, or personification, and identify its use in literary works.
- Simile: a comparison that uses *like* or *as*
- Metaphor: an implied comparison
- Hyperbole: an exaggeration for effect
- Personification: a description that represents a thing as a person
- Example: Identify a simile, such as *Twinkle, twinkle little star...like a diamond in the sky*. Identify a metaphor, such as *You were the wind beneath my wings*. Identify an example of hyperbole, such as *Cleaner than clean, whiter than white*. Identify an example of personification, such as *The North Wind told the girl that he would blow so hard it would be impossible to walk up the steep hill*.

WET Activities (page): 435

Standard 4

WRITING: Process

Students write clear sentences and paragraphs that develop a central idea. Students progress through the stages of the writing process, including prewriting, drafting, revising, and editing multiple drafts.

Organization and Focus

- 4.4.1 Discuss ideas for writing. Find ideas for writing in conversations with others and in books, magazines, newspapers, school textbooks, or on the Internet. Keep a list or notebook of ideas.

WET Activities (page): 457

- 4.4.3 Write informational pieces with multiple paragraphs that:
- provide an introductory paragraph.
 - establish and support a central idea with a topic sentence at or near the beginning of the first paragraph.

include supporting paragraphs with simple facts, details, and explanations.
present important ideas or events in sequence or in chronological order.
provide details and transitions to link paragraphs.
conclude with a paragraph that summarizes the points.
use correct indentation at the beginning of paragraphs.

WET Activities (page): 206, 289, 322, 403

- 4.4.4 Use common organizational structures for providing information in writing, such as chronological order, cause and effect, or similarity and difference, and posing and answering a question.

WET Activities (page): 289, 421

Research and Technology

- 4.4.7 Use multiple reference materials and online information (the Internet) as aids to writing.

WET Activities (page): 206

Standard 5

WRITING: Applications (Different Types of Writing and Their Characteristics)

At Grade 4, students are introduced to writing informational reports and responses to literature. Students continue to write compositions that describe and explain familiar objects, events, and experiences. Student writing demonstrates a command of Standard English and the drafting, research, and organizational strategies outlined in Standard 4 — Writing Process. Writing demonstrates an awareness of the audience (intended reader) and purpose for writing.

In addition to producing the different writing forms introduced in earlier grades, such as letters, Grade 4 students use the writing strategies outlined in Standard 4 — Writing Process to:

- 4.5.1 Write narratives (stories) that:
include ideas, observations, or memories of an event or experience.
provide a context to allow the reader to imagine the world of the event or experience.
use concrete sensory details.
Example: Prepare a narrative on how and why immigrants come to the United States. To make the story more realistic, use information from an older person who may remember firsthand the experience of coming to America.

WET Activities (page): 157, 161, 196, 289, 407

- 4.5.2 Write responses to literature that:
demonstrate an understanding of a literary work.
support judgments through references to both the text and prior knowledge.
Example: Write a description of a favorite character in a book. Include examples from the book to show why this character is such a favorite.

WET Activities (page): 25

- 4.5.3 Write informational reports that:

ask a central question about an issue or situation.

include facts and details for focus.

use more than one source of information, including speakers, books, newspapers, media sources, and online information.

Example: Use information from a variety of sources, such as speakers, books, newspapers, media sources, and the Internet, to provide facts and details for a report on life in your town when it was first settled or for a report about the water cycle.

WET Activities (page): 99, 307, 407

- 4.5.6 Write for different purposes (information, persuasion) and to a specific audience or person. Example: Write a persuasive report for your class about your hobby or interest. Use charts or pictures, when appropriate, to help motivate your audience to take up your hobby or interest.

WET Activities (page): 182, 403, 457

Standard 7

LISTENING AND SPEAKING: Skills, Strategies, and Applications

Students listen critically and respond appropriately to oral communication. They speak in a manner that guides the listener to understand important ideas by using proper phrasing, pitch, and modulation (raising and lowering voice). Students deliver brief oral presentations about familiar experiences or interests that are organized around a coherent thesis statement (a statement of topic). Students use the same Standard English conventions for oral speech that they use in their writing.

Comprehension

- 4.7.1 Ask thoughtful questions and respond orally to relevant questions with appropriate elaboration.

WET Activities (page): 122, 254, 382

Organization and Delivery of Oral Communication

- 4.7.6 Use traditional structures for conveying information, including cause and effect, similarity and difference, and posing and answering a question.

WET Activities (page): 289

Speaking Applications

- 4.7.11 Make narrative (story) presentations that:
relate ideas, observations, or memories about an event or experience.
provide a context that allows the listener to imagine the circumstances of the event or experience.
provide insight into why the selected event or experience should be of interest to the audience.

WET Activities (page): 289

- 4.7.12 Make informational presentations that:

focus on one main topic.

include facts and details that help listeners focus.

incorporate more than one source of information (including speakers, books, newspapers, television broadcasts, radio reports, or Web sites).

WET Activities (page): 267

In this technological age, mathematics is more important than ever. When students leave school, they are more and more likely to use mathematics in their work and everyday lives — operating computer equipment, planning timelines and schedules, reading and interpreting data, comparing prices, managing personal finances, and completing other problem-solving tasks. What they learn in mathematics and how they learn it will provide an excellent preparation for a challenging and ever-changing future.

The state of Indiana has established the following mathematics standards to make clear to teachers, students, and parents what knowledge, understanding, and skills students should acquire in Grade 4:

Standard 1 — Number Sense

Understanding the number system is the basis of mathematics. Students extend their understanding of the place value system to count, read, and write whole numbers up to 1,000,000 and decimals to two places. They order and compare whole numbers using the correct symbols for greater than and less than. They extend the concept of fractions to mixed numbers, learning how fractions are related to whole numbers. They also extend their skills with decimals and how they relate to fractions.

Standard 2 — Computation

Fluency in computation is essential. As students learn about numbers, they also learn how to add, subtract, multiply, and divide them. They understand the special roles of 0 and 1 in multiplication and division. They also add and subtract fractions and decimals, learning how these different representations of numbers can be manipulated.

Standard 3 — Algebra and Functions

Algebra is a language of patterns, rules, and symbols. Students at this level develop an understanding of the fundamental concept of a variable — having a letter represent all numbers of a certain kind. They use this to write formulas and equations, including equations that give the rule for a function. They continue number patterns involving multiplication and division. They recognize and apply the relationships among the four operations of addition, subtraction, multiplication, and division. They further develop the connection between numbers and number lines, including estimating positions on a number line.

Standard 4 — Geometry

Students learn about geometric shapes and develop a sense of space. They identify, describe, and draw such concepts as acute angles and parallel lines. They describe shapes and objects, including special quadrilaterals such as rhombuses and trapezoids. They identify congruent quadrilaterals and explain their reasoning using specific geometric terms. They draw lines of symmetry for various polygons, and they construct cubes and prisms, developing their ability to work in three dimensions.

Standard 5 — Measurement

The study of measurement is essential because of its uses in many aspects of everyday life. Students measure length to the nearest eighth-inch and millimeter and subtract units of length. They develop and use the formulas for calculating perimeters and areas of rectangles. They compare the concepts of volume and capacity. They add time intervals and calculate the amount of change from a purchase.

Standard 6 — Data Analysis and Probability

Data are all around us — in newspapers and magazines, in television news and commercials, in quality control for manufacturing — and students need to learn how to understand data. At this level, they represent data on a number line and in frequency tables, interpret data graphs to answer questions, and summarize the results of probability experiments in an organized way.

Standard 7 — Problem Solving

In a general sense, mathematics is problem solving. In all mathematics, students use problem-solving skills: they choose how to approach a problem, they explain their reasoning, and they check their results. As they develop their skills with numbers, geometry, or measurement, for example, students move from simple ideas to more complex ones by taking logical steps that build a better understanding of mathematics.

As part of their instruction and assessment, students should also develop the following learning skills by Grade 12 that are woven throughout the mathematics standards:

Communication

The ability to read, write, listen, ask questions, think, and communicate about math will develop and deepen students' understanding of mathematical concepts. Students should read text, data, tables, and graphs with comprehension and understanding. Their writing should be detailed and coherent, and they should use correct mathematical vocabulary. Students should write to explain answers, justify mathematical reasoning, and describe problem-solving strategies.

Reasoning and Proof

Mathematics is developed by using known ideas and concepts to develop others. Repeated addition becomes multiplication. Multiplication of numbers less than ten can be extended to numbers less than one hundred and then to the entire number system. Knowing how to find the area of a right triangle extends to all right triangles. Extending patterns, finding even numbers, developing formulas, and proving the Pythagorean Theorem are all examples of mathematical reasoning. Students should learn to observe, generalize, make assumptions from known information, and test their assumptions.

Representation

The language of mathematics is expressed in words, symbols, formulas, equations, graphs, and data displays. The concept of one-fourth may be described as a quarter, $\frac{1}{4}$, one divided by four, 0.25, $\frac{1}{8} + \frac{1}{8}$, 25 percent, or an appropriately shaded portion of a pie graph. Higher-level mathematics involves the use of more powerful representations: exponents, logarithms, π , unknowns, statistical representation, algebraic and geometric expressions. Mathematical operations are expressed as representations: +, =, divide, square. Representations are dynamic tools for solving problems and communicating and expressing mathematical ideas and concepts.

Connections

Connecting mathematical concepts includes linking new ideas to related ideas learned previously, helping students to see mathematics as a unified body of knowledge whose concepts build upon each other. Major emphasis should be given to ideas and concepts across mathematical content areas that help students see that mathematics is a web of closely connected ideas (algebra, geometry, the entire number system). Mathematics is also the common language of many other disciplines (science, technology, finance, social science, geography) and students should learn mathematical concepts used in those

disciplines. Finally, students should connect their mathematical learning to appropriate real-world contexts.

Standard 1

Number Sense

Students understand the place value of whole numbers and decimals to two decimal places and how whole numbers and decimals relate to simple fractions.*

- 4.1.1 Read and write whole numbers up to 1,000,000.
Example: Read aloud the number 394,734.

WET Activities (page): 238

- 4.1.2 Identify and write whole numbers up to 1,000,000, given a place-value model.
Example: Write the number that has 2 hundred thousands, 7 ten thousands, 4 thousands, 8 hundreds, 6 tens, and 2 ones.

WET Activities (page): 344

- 4.1.8 Write tenths and hundredths in decimal and fraction notations. Know the fraction and decimal equivalents for halves and fourths (e.g., $\frac{1}{2} = 0.5 = 0.50$, $\frac{7}{4} = 1\frac{3}{4} = 1.75$).
Example: Write $\frac{26}{100}$ and $\frac{23}{4}$ as decimals.

WET Activities (page): 63

Standard 2

Computation

Students solve problems involving addition, subtraction, multiplication, and division of whole numbers and understand the relationships among these operations. They extend their use and understanding of whole numbers to the addition and subtraction of simple fractions and decimals.

- 4.2.1 Understand and use standard algorithms* for addition and subtraction.
Example: $45,329 + 6,984 = ?$, $36,296 - 12,075 = ?$.

WET Activities (page): 382

- 4.2.11 Know and use strategies for estimating results of any whole-number computations.
Example: Your friend says that $45,329 + 6,984 = 5,213$. Without solving, explain why you think the answer is wrong.

WET Activities (page): 289

Standard 3

Algebra and Functions

Students use and interpret variables, mathematical symbols, and properties to write and simplify numerical expressions and sentences. They understand relationships among the operations of addition, subtraction, multiplication, and division.

- 4.3.2 Use and interpret formulas to answer questions about quantities and their relationships.
Example: Write the formula for the area of a rectangle in words. Now let l stand for the length, w for the width, and A for the area. Write the formula using these symbols.

WET Activities (page): 328

- 4.3.7 Relate problem situations to number sentences involving multiplication and division.
Example: You have 150 jelly beans to share among the 30 members of your class. Write a number sentence for this problem and use it to find the number of jelly beans each person will get.

WET Activities (page): 328

- 4.3.8 Plot and label whole numbers on a number line up to 100. Estimate positions on the number line.
Example: Draw a number line and label it with 0, 10, 20, 30, ..., 90, 100. Estimate the position of 77 on this number line.

WET Activities (page): 171, 271, 293, 307

Standard 5

Measurement

Students understand perimeter and area, as well as measuring volume, capacity, time, and money.

- 4.5.8 Use volume and capacity as different ways of measuring the space inside a shape.
Example: Use cubes to find the volume of a fish tank and a pint jug to find its capacity.

WET Activities (page): 30, 63

- 4.5.9 Add time intervals involving hours and minutes.
Example: During the school week, you have 5 recess periods of 15 minutes. Find how long that is in hours and minutes.

WET Activities (page): 328, 373

Standard 6

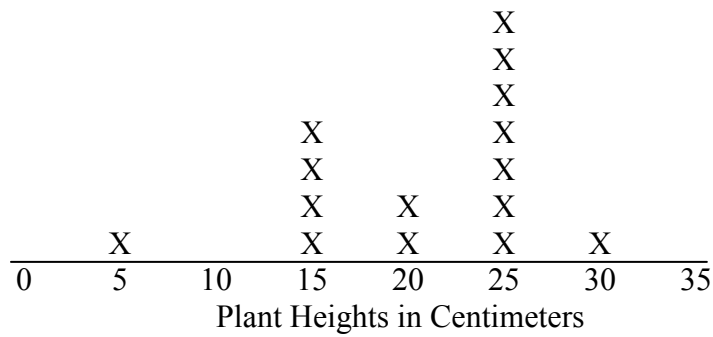
Data Analysis and Probability

Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings. They show outcomes for simple probability situations.

- 4.6.1 Represent data on a number line and in tables, including frequency tables.
Example: The students in your class are growing plants in various parts of the classroom. Plan a survey to measure the height of each plant in centimeters on a certain day. Record your survey results on a line plot.

WET Activities (page): 238, 293, 307

- 4.6.2 Interpret data graphs to answer questions about a situation.
Example: The line plot below shows the heights of fast-growing plants reported by third-grade students. Describe any patterns that you can see in the data using the words “most,” “few,” and “none.”



WET Activities (page): 293

Standard 7

Problem Solving

Students use strategies, skills, and concepts in finding and communicating solutions to problems.

- 4.7.4 Use a variety of methods, such as words, numbers, symbols, charts, graphs, tables, diagrams, tools, and models to solve problems, justify arguments, and make conjectures.
 Example: In the first example, make a table to help you explain your results to another student.

WET Activities (page): 289, 307, 373, 382

- 4.7.8 Make precise calculations and check the validity of the results in the context of the problem.
 Example: The buses you use for a school trip hold 55 people each. How many buses will you need to seat 180 people?

WET Activities (page): 328

GRADE 4

Indiana in the Nation and the World

Students in Grade 4 study Indiana and its relationships to regional, national, and world communities, including the influence of physical and cultural environments on the state's growth and development and principles and practices of citizenship and government in Indiana..

The Indiana's K – 8 academic standards for social studies are organized around five content areas. The content area standards and the types of learning experiences they provide to students in Grade 4 are described below. On the pages that follow, age-appropriate concepts are listed underneath each standard. Skills for thinking, inquiry, and participation in a democratic society are integrated throughout. Specific terms are defined and examples are provided when necessary.

Standard 1 — History

Students will trace the historical periods, places, people, events, and movements that have led to the development of Indiana as a state.

Standard 3 — Geography

Students will explain how Earth/sun relationships influence the climate of Indiana; identify the components of Earth's physical systems; describe the major physical and cultural characteristics of Indiana; give examples of how the interaction of people with their environment has changed over time and continues to change; and identify regions of Indiana.

Standard 4 — Economics

Students will study and compare the characteristics of Indiana's changing economy in the past and present.

Standard 5 — Individuals, Society, and Culture

Students will examine the interaction between individual and group behavior in state and community life; analyze the roles and relationships of diverse groups of people contributing to Indiana's cultural heritage; and describe the impacts of science, technology, and the arts on Indiana's culture.

Standard 1 History

Students will trace the historical periods, places, people, events, and movements that have led to the development of Indiana as a state.

Historical Knowledge

1920 to the Present

- 4.1.11 Identify important events and movements that changed life in Indiana in the twentieth century.
Example: The Great Depression, World War II, African American migration from the South, post-war baby boom, civil rights movements, the Vietnam War, increase in Asian and Hispanic immigration.

WET Activities (page): 232

Standard 3

Geography

Students will explain how Earth/sun relationships influence the climate of Indiana, identify the components of Earth's physical systems, describe the major physical and cultural characteristics of Indiana, give examples of how the interaction of people with their environment has changed over time and continues to change, and identify regions of Indiana.

The World in Spatial Terms

- 4.3.1 Use latitude* and longitude* to locate places in Indiana and other parts of the world.

WET Activities (page): 174

Places and Regions

- 4.3.5 Map the physical regions of Indiana and identify major natural resources and crop regions.

WET Activities (page): 254

Physical Systems

- 4.3.6 Explain how glacial periods shaped Indiana's landscape and environment.

WET Activities (page): 238

- 4.3.7 Describe Earth's atmosphere*, lithosphere*, hydrosphere*, and biosphere* and explain how these systems affect life in Indiana.

* atmosphere: the gases that surround Earth, including the air we breathe

* lithosphere: the soil and rock that form Earth's surface

* hydrosphere: all the water on Earth's surface, including the hydrologic cycle (precipitation, evaporation, and condensation)

* biosphere: all plants and animals

WET Activities (page): 133, 174, 289, 293

Environment and Society, Uses of Geography

- 4.3.9 Create maps of Indiana at different times in history showing regions and major physical and cultural features; give examples of how people in Indiana have modified their environment over time.

WET Activities (page): 382

- 4.3.10 Read and interpret thematic maps — such as transportation, population, and products — to acquire information about Indiana in the present and the past.

WET Activities (page): 421

Standard 4

Economics

Students will study and compare the characteristics of Indiana's changing economy in the past and present.

- 4.4.4 Explain that prices change as a result of changes in supply* and demand* for specific products.

WET Activities (page): 373

Standard 5

Individuals, Society, and Culture

Students will examine the interaction between individual and group behavior in community life; analyze the roles and relationships of diverse groups of people contributing to Indiana's cultural heritage; and describe the impacts of science, technology, and the arts on Indiana's culture.

- 4.5.6 Investigate the contributions and challenges experienced by people from various cultural, racial, and religious groups in Indiana during different historical periods by reading biographies, historical accounts, stories, and electronic media, such as CD-ROMs and Web sites.

- * social group: a group of people who share common goals and interests
- * cultural group: a group of people who share common language, religion, and customs
- * technology: the knowledge of how to make things, as well as the invention and development of tools, machines, and skills by humans

WET Activities (page): 382